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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/042,357	01/11/2002	Beng S. Ong	D/A1656	6796

7590 08/26/2005

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EXAMINER

TRUONG, DUC

ART UNIT	PAPER NUMBER
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1711

DATE MAILED: 08/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/042,357

Applicant(s)

ONG ET AL.

Examiner

Duc Truong

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 15 August 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 2-4,6,13-18 and 21-32 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 2-4,6,13-18 and 21-32 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

The finality of the last office action is hereby withdrawn and prosecution is reopened to permit the reaching of a clear issue of patentability.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2-4, 13-16 and 21-27 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Sato et al.

The reference discloses at least a hexyl substituted oligothiophenes having a specific structure (see page 986, last structure).

In the formula in claim 2, if  $a=0$ ,  $b=c=d=1$ ,  $n=5$  and  $R=C_6H_{13}$ , then the claimed formula is read on that of the reference.

Claims 2-4, 6, 13-16, 18, and 21-27 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over van Hutten et al.

Next to the last formula on page 3219, the reference discloses at least one formula, corresponding to the general formula in claim 2 or formula (II-c) in claims 3-4.

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In the claimed formula, if  $a=0$ ,  $b=d=1$ ,  $c=2$  and  $R=C_8H_{17}$  or trimethylsilyl- and pentemethyldisilanyl substituted oligothiophenes (see page 3220, first paragraph on the left hand side), then the claimed formulae are read on this of the reference.

The disclosures of the references differ from the instant claims in that they neither discloses Mn nor Mw nor the claimed conductivity.

However, the compositions disclosed by the references are prepared from reactants under process conditions that are inclusive of the claimed reactants and conditions. In view of this similarity, it would appear to be inherent that a product, polythiophenes, of the claimed formulae, and having the claimed properties could be prepared following the teachings of the references.

Claims 28 and 31-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP 0402269 in view of Sato or van Hutten.

The EP 0402269 discloses a process for the preparation of polythiophenes comprising reacting about 1 molar equivalent of a suitable monomer in an organic solvent (benzene) with about 1 molar equivalent of a ferric chloride at ambient temperature (see formula 1 on page 9).

The disclosure of the reference differs from the instant claims in that it does not disclose the claimed formula.

However, the reference does disclose the general formulae (see page 5) in that the claimed formula is included.

Further, Sato or van Hutten does disclose the claimed polythiophene formulae are well known in the art.

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It would have been obvious to one of ordinary skill in the art to employ the polythiophenes, as disclosed in Sato or van Hutten, in the claimed process of EP 0402269, in order to gain the advantages of the combinations of the references, that being polythiophenes can be used on electroluminescence device such as LED, or semiconductor devices.

The EP 0402269 reference discloses a process for the preparation of polythiophenes.

The Sato or van Hutten reference discloses the claimed polythiophene formula is well known in the art

The determination of said polythiophenes in the claimed process of EP 0402269 would not provide any unexpected results to one of ordinary skill in the art.

Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sato or van Hutten.

The Sato reference discloses a process for the preparation of oligothiophenes by a reductive coupling reaction of dibromo-dihexyl-terthiophene in the presence of Zn and activated Nickel and triphenylphosphine at a temperature of 70°C in 5 hours.

The van Hutten reference discloses a process for the preparation of thiophene based regioregular polymers from bromothiophenes, by a Ni-catalyzed Grignard (see page 3219, Materials and Methods).

The disclosures of the references differ from the instant claims in that they do not disclose the claimed catalytic system.

However, the references do disclose the general teachings of said system in that the claimed catalytic system is included.

It would have been obvious to one of ordinary skill in the art to modify the catalytic system from the references within the limitations of the instant claims since they have been shown to be effective in a similar system and thus would have been expected to provide adequate results. There is no showing of unexpected results derived from said use.

Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sato or van Hutten.

The references disclose the polythiophenes of the claimed formula having a side chain. The disclosures of the references differ from the instant claims in that they do not disclose the claimed side chain R which is a perfluoroalkyl of C2-15.

However, the references do disclose the side chain R which is trimethylsilyl or alkyl, having the same functionality with perfluoroalkyl group, in that none of the side group contribute or effect mechanism, due to form the same or similar products.

Therefore, it would have been obvious to one of ordinary skill in the art to select any side chain from the references to replace the perfluoroalkyl group of the instant claims to form the products of the claimed formulae in the absence of a showing of unexpected results derived from said selection.

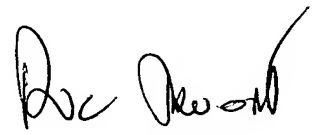
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Duc Truong whose telephone number is 571-272-1081. The examiner can normally be reached on Monday-Friday.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on 571-272-1078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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DUCTRUONG  
PRIMARY EXAMINER